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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/580,861	05/30/2000	Giridhar D. Mandyam	NC17137	1169
30973	7590	03/30/2005	EXAMINER	
SCHEEF & STONE, L.L.P.			ODOM, CURTIS B	
5956 SHERRY LANE				
SUITE 1400				
DALLAS, TX 75225			ART UNIT	PAPER NUMBER
			2634	

DATE MAILED: 03/30/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/580,861

Applicant(s)

MANDYAM, GIRIDHAR D.

Examiner

Curtis B. Odom

Art Unit

2634

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 24 September 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 May 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-4, 11-17, and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fouche et al. (U. S. Patent No. 4, 864, 221).

Regarding claim 1, Fouche et al. discloses in a radio device operable in a radio communication system (Fig. 7) at least to receive a receive signal, the receive signal formed of a desired component transmitted (column 2, line 1-column 3, line 44, first sample or single sample) to the radio device upon a desired receive band and at least potentially a non-desired signal component (column 2, line 1-column 3, line 44, wherein the second samples or odd values of the signals are the non-desired component) transmitted to the radio device, an improvement of apparatus for facilitating the recovery of the desired component of the receive signal, the apparatus (Fig. 1) comprising:

a non-desired component indicia detector (Fig. 1, blocks 141 and 191, column 2, line 1-column 3, line 44) coupled to receive indications of the receive signal, the non-desired component indicia detector for detecting an indicia of the non-desired component of the receive signal, irrespective of power levels of the non-desired component and for forming a detecting

Art Unit: 2634

signal indicative of the non-desired component of the receive signal, free of indications of the desired component (column 3, lines 1-44, wherein the odd values or occurrences of “second” samples are output from the filter to the zero crossing detector to detect instances at which these odd values or “second” samples are not present);

a receive signal sampler (Fig. 7, block 142, column 2, line 1-column 3, line 44) also coupled to receive indications of the receive signal and coupled to receive the detection signal (output from block 191) from by the non-desired component indicia detector responsive to detection of the indications (column 3, lines 34-44) of the indicia of the non-desired component of the receive signal detected by the non-desired component indicia detector, the receive signal sampler for sampling the receive signal at sampling times responsive to the indicia detected by the non-desired component indicia detector and to form a sampled signal, the sampled signal formed of signal sample, the signal samples free of the non-desired component through appropriate selection of sampling times at which the indications of the receive signal are sampled, the receive signal once sampled, representative of the desired component of the receive signal (Fig. 6, column 2, lines 1-64 and column 3, lines 34-44).

Fouche et al. does not specifically disclose the non-desired component is generated from a signal upon an other-than-desired frequency band. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made that the present application does not constitute patentability over Fouche et al. simply because the non-desired component is generated from a signal upon an other-than-desired frequency band. Fouche et al discloses a method/apparatus for recovering a desired component of a signal by detecting the non-desired component by filtering and detecting zero crossings of the output of the filter and creating a

Art Unit: 2634

sampling control signal from the detection of the non-desired component. Therefore, it would have been obvious that the method/device of Fouche et al. could have been applied to a signal in which the non-desired component is generated from a signal upon an other-than-desired frequency band. The signal could be filtered and the zero-crossings of the output of the filter would be used to create a sampling control signal as disclosed by Fouche et al. without changing the functionality of the device. Thus, claim 1 does not constitute patentability.

Regarding claim 2, which inherits the limitations of claim 1, Fouche et al. further discloses the non-desired component (“odd values”) of the receive signal exhibits a characteristic frequency, represented by a waveform having power-level zero-crossings, and wherein the indicia detected by the non-desired component indicia detector comprises indications of occurrences of the zero-crossings of the non-desired component of the zero-crossings (column 3, lines 34-44 and column 4, lines 65-68).

Regarding claim 3, which inherits the limitations of claim 2, Fouche et al. further discloses the non-desired component detector comprises a zero-crossing detector (Fig. 7, block 191, column 4, lines 65-68), the zero-crossing detector for detecting times at which the non-desired component of the receive signal crosses a zero power level and for forming signal crossing indications responsive thereto (column 3, lines 34-44).

Regarding claim 4, which inherits the limitations of claim 3, Fouche et al. further discloses a filter element (Fig. 7, block 141, column 3, lines 1-44) positioned in line with the zero-crossing detector, the filter element for forming a filtered signal, the filtered signal forming the indications of the receive signal to which the zero-crossing detector is coupled to receive.

Regarding claim 11, which inherits the limitations of claim 1, Fouche et al. further discloses the desired component of the receive signal comprises a transmit signal intended to be transmitted to the radio device (column 1, lines 1-20, radioelectric signal), and once sampled by the receive signal sampler, if formed of sampled portions of the transmit signal (column 2, line 1-column 3, line 44). Fouche et al. does not disclose the non-desired component comprises an adjacent channel identifying signal. However, it would have been obvious to one of ordinary skill in the art that the method/device of Fouche et al. could have been applied to a signal in which the non-desired component is an adjacent channel identifying signal. The non-desired signal could be filtered and the zero-crossings of the output of the filter would be used to create a sampling control signal as disclosed by Fouche et al. without changing the functionality of the device. Thus, claim 11 does not constitute patentability.

Regarding claim 12, which inherits the limitations of claim 11, Fouche et al. does not disclose the device implemented into a CDMA cellular communication system, wherein the desired receive band comprises a CDMA receive band allocated to the CDMA cellular communication system for communication thereon of CDMA signals. However, it would have been obvious to one skilled in the art at that the device of Fouche et al. could have been implemented into any device which communicates continuous signals (column 1, lines 1-20). Thus, since CDMA systems transmit continuous signals, claim 12 does not constitute patentability.

Regarding claim 13, which inherits the limitations of claim 12, Fouche et al. does not disclose the device implemented into a radio device comprising a cellular mobile terminal having a transmit and receive portion wherein the non-desired component indicia detector and the

Art Unit: 2634

receive signal sampler comprise portions of the receive portion of the cellular mobile terminal. However, it would have been obvious to one skilled in the art at that the device of Fouche et al. could have been implemented into any device which communicates continuous signals (column 1, lines 1-20). Thus, since cellular (CDMA) systems transmit continuous signals, claim 12 does not constitute patentability.

Regarding claims 14-17, the claimed method includes features that correspond with subject matter mentioned above in the rejection of claims 1-4 are applicable hereto.

Regarding claim 20, the claimed method includes features that correspond with subject matter mentioned above in the rejection of claim 1 are applicable hereto.

3. Claims 5-10, 18, and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fouche et al. (U.S. Patent No. 4, 864, 221) in view of Tateishi (previously cited in Office Action 6/21/2004).

Regarding claims 5 and 6, Fouche et al. discloses all the limitations of claim 5 and 6 (see previous rejection of claim 4), except a digitizer in line with the filter element and coupled to receive representations of the receive signal, the digitizer for digitizing the representations of the receive signal, the digitized representations applied to the filter element wherein the indications of the receive signal of which the receive signal sampler is coupled to receive comprise the digitized representations of the receive signal.

However, Tateishi discloses a digitizer (Fig. 4, block 5, column 4, lines 6-10) to receive representations of the receive signal, and digitizing the representations of the receive signal, the digitized representations applied to a zero crossing detector (Fig. 4, block 31, column 4, lines 34-37). Therefore, it would have been obvious to one of ordinary skill in the art at the time the

Art Unit: 2634

invention was made to modify the receiver of Fouche et al. to include the digitizer of Tateishi to allow the filtering, zero-crossing detection and sampling to be performed in the digital domain which would allow for consistent signal quality and resistance to noise and interference in the receiver which could damage the signal during processing.

Regarding claim 7, which inherit the limitations of claim 6, Fouche et al. and Tateishi do not disclose a delay element positioned between the digitizer and the receive signal sampler, the delay element for delaying application of the digitized representation of the receive signal to the receive signal sampler for a selected time period. However, Fouche et al. discloses the delay induced in the branch comprising the sampler is compensated for by the delay induced in the branch comprising the zero detection circuit (column 3, lines 33-44). Therefore, it would have been obvious to one skilled in the art at the time the invention was made to include this feature to have the signal arrive at the sampler at the same time as the indications from the detector in order to properly sample the signal using the zero-detection readings. Sampling with the indications would produce a more accurate information signal with reduced noise.

Regarding claim 8, which inherits the limitations of claim 7, Fouche et al and Tateishi do not disclose the delay element delays the digitized representation of the receive signal substantially corresponds to a time period required by the filter element to form the filtered signal. However, Fouche et al. discloses the delay induced in the branch comprising the sampler is compensated for by the delay induced in the branch comprising the zero detection circuit (column 3, lines 33-44). Therefore, it would have been obvious to one skilled in the art at the time the invention was made to include this feature to have the signal arrive at the sampler at the same time as the indications from the detector in order to properly sample the signal using the



zero-detection readings. Sampling with the indications would produce a more accurate information signal with reduced noise.

Regarding claim 9, which inherits the limitations of claim 5, Tateishi further discloses a clock signal generator (Fig. 4, block 9, column 4, lines 6-9) coupled to the digitizer, the clock signal generator for generating a clock signal of a clock rate responsive to which the digitizer digitizes the representation of the receive signal. It would have been obvious to one of ordinary skill in the art to include this feature because controlling the sampling frequency allows one to obtain the most accurate representation of the digital signal.

Regarding claim 10, which inherits the limitations of claim 9, Tateishi does not disclose the clock rate of the clock signal generated by the clock signal generator is greater than the characteristic frequency of the non-desired signal component of the receive signal. It would have been obvious to one of ordinary skill in the art to include this feature because oversampling can reduce the noise in the digital representation of the signal.

Regarding claims 18 and 19, the claimed method includes features that correspond with subject matter mentioned above in the rejection of claim 5 and 10 are applicable hereto.

### ***Conclusion***

4. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO**

Art Unit: 2634


MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Curtis B. Odom whose telephone number is 571-272-3046. The examiner can normally be reached on Monday- Friday, 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Chin can be reached on 571-272-3056. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Curtis Odom  
March 17, 2005



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